

Unit 10

Day 7

More Absolute Value Equations

1)

$$|5x-1| = |-2x+1|^2$$

$$|5x-1| = (-2x+1)^2$$

$$-(5x-1) = (-2x+1)^2 \text{ or}$$

$$-5x+1 = 4x^2 - 4x + 1$$

$$0 = 4x^2 + x$$

$$0 = x(4x+1)$$

$$x = 0, -\frac{1}{4}$$

$$(5x-1) = (-2x+1)^2$$

$$5x-1 = 4x^2 - 4x + 1$$

$$0 = 4x^2 - 9x + 2$$

$$0 = (x-2)(4x-1)$$

$$x = 2, \frac{1}{4}$$

$$\text{or } \left\{ \pm \frac{1}{4}, 0, 2 \right\}$$

$$2) \quad 3|2x+1| = |2x+1|^2$$

$$\text{let } y = |2x+1|$$

$$3y = y^2$$

$$y^2 - 3y = 0$$

$$y(y-3) = 0$$

$$y = 0, 3$$

$$3 = |2x+1| \quad \text{or} \quad 0 = |2x+1|$$

$$-3 = 2x+1 \quad \text{or} \quad 3 = 2x+1$$

$$-4 = 2x$$

$$-2 = x$$

$$2 = 2x$$

$$1 = x$$

$$0 = 2x+1$$

$$x = -\frac{1}{2}$$

$$\left\{ -\frac{1}{2}, 1, -2 \right\}$$

$$3) \quad |1-3x|^2 - 3|1-3x| - 10 = 0$$

$$\text{let } y = |1-3x|$$

$$y^2 - 3y - 10 = 0$$

$$(y-5)(y+2) = 0$$

$$y = 5, -2$$

$$|1-3x| = 5$$

$$|1-3x| \neq -2$$

$$1-3x=5 \quad \text{or} \quad 1-3x=-5$$

$$-3x=4$$

$$x = -\frac{4}{3}$$

$$-3x=-6$$

$$x=2$$

$$\left\{ -\frac{4}{3}, 2 \right\}$$

HOMEWORK:

Wksht 38,43-47 all (copied from a textbook)

Wksht Abs Value Equations: 1-12

Unit 10

Day 8

Absolute Value Inequalities

Section 2.8 from textbook

$$1) \quad |3x| \leq 9$$

$$-9 \leq 3x \leq 9$$

$$-3 \leq x \leq 3$$

$$[-3, 3]$$

$$|3x| \geq 9$$

$$3x \leq -9 \text{ OR } 3x \geq 9$$

$$x \leq -3 \text{ or } x \geq 3$$

$$(-\infty, -3] \cup [3, \infty)$$

$$2) \quad -2|5x+2|+8 > -4$$

$$-2|5x+2| > -12$$

$$|5x+2| < 6$$

$$-6 < 5x+2 < 6$$

$$-8 < 5x < 4$$

$$-\frac{8}{5} < x < \frac{4}{5}$$

$$\left(-\frac{8}{5}, \frac{4}{5}\right)$$

$$3) |x^2 + 5x| > 6 \quad (-\infty, -6) \cup (-3, 2) \cup (1, \infty)$$

$$x^2 + 5x > 6 \quad \underline{\underline{\text{OR}}} \quad x^2 + 5x < -6$$

$$x^2 + 5x - 6 > 0$$

$$(x+6)(x-1) > 0$$

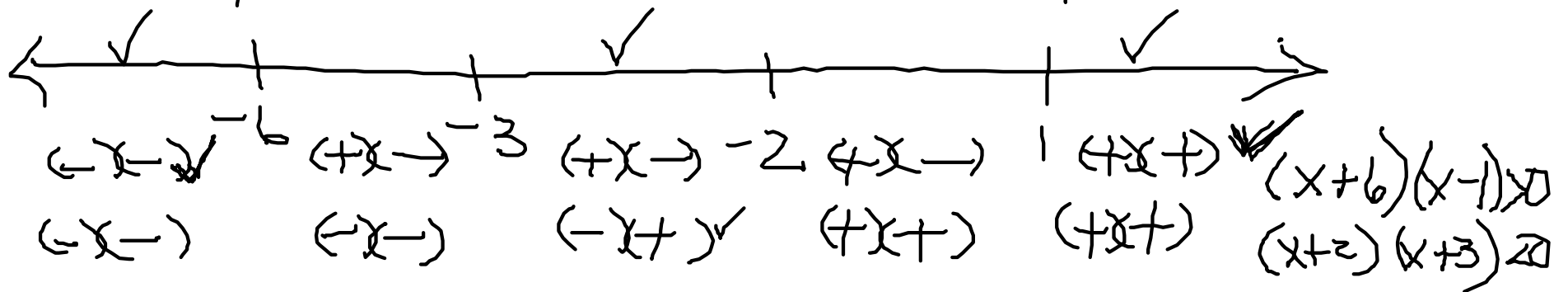
$(x-6, 1)$

(OR)

$$x^2 + 5x + 6 < 0$$

$$(x+2)(x+3) < 0$$

$(x-2, -3)$



$$4) \left| \frac{3x-2}{x} \right| \leq 2$$

$$\frac{3x-2}{x} \geq -2$$

AND

$$\frac{3x-2}{x} \leq 2$$

$$\frac{3x-2}{x} + \frac{2x}{x} \geq 0$$

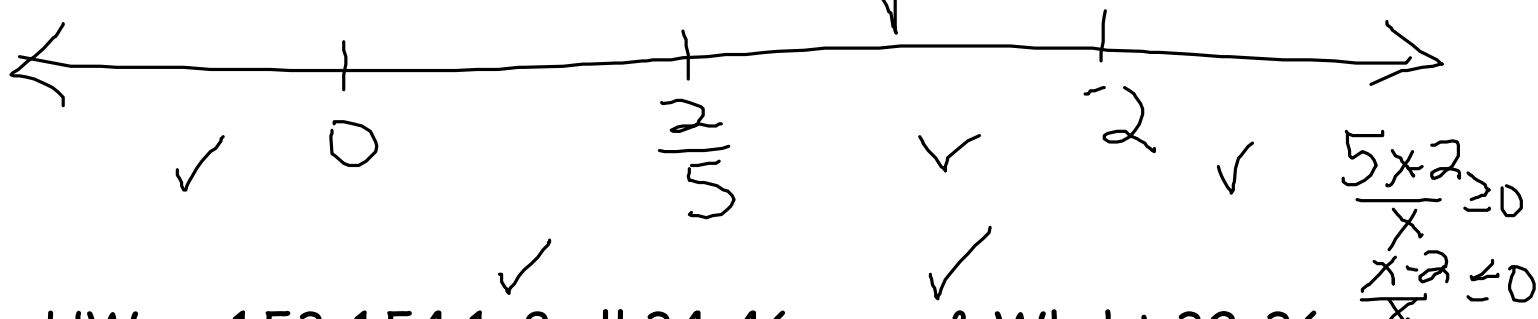
$$\frac{3x-2}{x} - \frac{2x}{x} \leq 0$$

$$\frac{5x-2}{x} \geq 0$$

AND

$$\frac{x-2}{x} \leq 0$$

$$\left[\frac{2}{5}, 2 \right]$$



HW pg 153-154 1-8 all, 34-46 even & Wksht 32-36 even